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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ALEXANDER BERGER and
ALEXANDER GOURKOV BALIKOV

Appeal 2008-3660
Application 10/774,885
Technology Center 2100

Decided: March 13, 2009

Before HOWARD B. BLANKENSHIP, ST. JOHN COURTENAY III, and
THU A. DANG, *Administrative Patent Judges*.

COURTENAY, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

This is a decision on appeal under 35 U.S.C. § 134(a) from the
Examiner's rejection of claims 1-25 and 27-31. Claim 26 has been cancelled.
We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

INVENTION

The invention on appeal is directed generally to an analytical database system. More particularly, Appellants' invention is directed to computation optimization of distinct count query. (Spec. 1).

ILLUSTRATIVE CLAIM

Claim 1, which further illustrates the invention, follows:

1. A distinct count query system implemented on a machine comprising:

a query process component to retrieve a plurality of partitions from a database;

a range component that determines the maximum and minimum values associated with each partition; and

a group component that utilizes the maximum and minimum range values to determine independent partitions or partition groups, wherein independent partitions or partition groups are executed concurrently with other partitions.

PRIOR ART

The Examiner relies upon the following references as evidence in support of the single obviousness rejection:

Mittal	US 2005/0138001 A1	Jun. 23, 2005
Agrawal	US 5,926,820	Jul. 20, 1999
Ballamkonda	US 6,775,682 B1	Aug. 10, 2004

THE REJECTION

1. Claims 1-25 and 27-31 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Mittal, Agrawal, and Ballamkonda.

CLAIM GROUPING

In the principal Brief, Appellants argue claims 1-25 and 27-31 as a group. (App. Br. 3, ¶4). We will, therefore, treat claims 1-25 and 27-31 as standing or falling with claim 1. *See* 37 C.F.R. § 41.37(c)(1)(vii).

APPELLANTS' CONTENTIONS

Regarding the Examiner's rejection of representative claim 1, Appellants make the following contentions:

Appellants aver that "Agrawal *et al.* is completely silent regarding a range component that determines the maximum *and* minimum values *associated with each partition to determine independent partitions* as recited in the subject claims." (App. Br. 5, ¶1, emphasis in original).

Appellants further contend that "Ballamkonda *et al.* does not teach or suggest *a group component that utilizes the maximum and minimum range values to determine independent partitions or partition groups, wherein independent partitions or partition groups are executed concurrently with other partitions* as recited in the subject claims." (App. Br. 5, ¶2, emphasis in original).

EXAMINER'S RESPONSE

The Examiner responds that “the features upon which appellant[s] [rely] (i.e., to determine independent partitions) are not recited in the rejected claim(s) as such.” (Ans. 11-12). The Examiner explains, as follows:

The second limitation of the claim discusses a range component that determines minimum and maximum values associated with each partition, which is not implemented in order to determine independent partitions. As a matter of fact, the feature of determining independent partitions [is] not claimed until the last limitation within the claim language in which a group component is utilized
(Ans. 11-12).

ISSUE

Based upon our review of the record, we have determined that the following issue is dispositive in this appeal:

Have Appellants shown error in the Examiner's finding that the combination of Mittal, Agrawal, and Ballamkonda teaches and/or suggests the following limitations recited in representative claim 1:

a group component that utilizes the maximum and minimum range values to determine independent partitions or partition groups, wherein independent partitions or partition groups are executed concurrently with other partitions?

PRINCIPLES OF LAW

“What matters is the objective reach of the claim. If the claim extends to what is obvious, it is invalid under § 103.” *KSR Int’l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727, 1742 (2007). To be nonobvious, an improvement must be “more than the predictable use of prior art elements according to their established functions.” *Id.* at 1740. Invention or

discovery is the requirement which constitutes the foundation of the right to obtain a patent . . . unless more ingenuity and skill were required in making or applying the said improvement than are possessed by an ordinary mechanic acquainted with the business, there is an absence of that degree of skill and ingenuity which constitute the essential elements of every invention.” *Dunbar v. Myers*, 94 U.S. 187, 197 (1876) (citing *Hotchkiss v. Greenwood*, 52 U.S. 248, 267 (1850)) (*Hotchkiss v. Greenwood* was cited with approval by the Supreme Court in *KSR*, 127 S. Ct. at 1734, 1739, 1746).

Appellants have the burden on appeal to the Board to demonstrate error in the Examiner’s position. *See In re Kahn*, 441 F.3d 977, 985-86 (Fed. Cir. 2006). Therefore, we look to Appellants’ Briefs to show error in the Examiner’s proffered prima facie case.

FINDINGS OF FACT

In our analysis *infra*, we rely on the following findings of fact (FF) that are supported by a preponderance of the evidence:

THE AGRAWAL REFERENCE

1. Agrawal teaches that “a method for performing a range max/min query on a data cube comprising the steps of: (i) partitioning the data cube into multiple levels of d-dimensional blocks; (ii) representing the blocks as a tree structure where the nodes at level n of the tree correspond respectively to the n-level blocks; (iii) for each block, determining the cell index of the max/min value; (iv) storing the determined cell indexes into the nodes corresponding respectively

with the blocks; and (v) generating a range max/min result from the values of the cells in the query region Q and those referenced by the indexes stored in the tree nodes.” (Col. 4, ll. 7-18).

THE BALLAMKONDA REFERENCE

2. Ballamkonda teaches “[e]xamples of aggregate functions are functions that sum values, calculate averages, and determine minimum and maximum values.” (Col. 1, l. 67 through col. 2, ll. 2).
3. Ballamkonda teaches “[u]sing parallel evaluation, processing of aggregate functions is split among different processing slaves” (Abstract).
4. Ballamkonda teaches “using parallel evaluation, the measure of an aggregate function is included as a partitioning key. . . .” (Col. 4, l. 38-40).

ANALYSIS

At the outset, we consider Appellants’ arguments in the Briefs only to the extent that such arguments are directed to claimed subject matter.

We begin our analysis by considering the scope of the claimed “*independent partitions or partition groups*.” (Claim 1).

During prosecution, “the PTO gives claims their ‘broadest reasonable interpretation.’” *In re Bigio*, 381 F.3d 1320, 1324 (Fed. Cir. 2004) (quoting *In re Hyatt*, 211 F.3d 1367, 1372 (Fed. Cir. 2000)).

As pointed out by the Examiner, the pertinent portion of the claim recites “*independent partitions or partition groups*” in the alternative. Thus, this portion of the claim could be more narrowly read as *independent*

partitions or independent partition groups where the adjective “independent” modifies both nouns (i.e., “partitions” and “groups”). In the alternative, the aforementioned portion of the claim more broadly reads as *independent partitions or partition groups* where the adjective “independent” merely modifies the first noun (“partitions”) and not the second noun (“groups”).

In the latter case, the pertinent portion of the claim broadly reads as:

a group component that utilizes the maximum and minimum range values to determine partition groups, wherein partition groups are executed concurrently with other partitions.

As a matter of claim construction, the Examiner appears to have adopted the latter interpretation, which we find to be reasonable. If Appellants intended the former more narrow construction, we note that Appellants could have amended the claims during prosecution to clarify this point. However, Appellants chose not to do so. Because “applicants may amend claims to narrow their scope, a broad construction during prosecution creates no unfairness to the applicant or patentee.” *In re ICON Health and Fitness, Inc.*, 496 F.3d 1374, 1379 (Fed. Cir. 2007) (citing *In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004)).

Given the aforementioned claim construction, and based upon our review of the references, we find the weight of the evidence supports the Examiner’s rejection of representative claim 1.

We note that Appellants argue in the principal Brief that “Agrawal *et al.* is completely silent regarding a range component that determines the maximum *and* minimum values *associated with each partition to determine independent partitions* as recited in the subject claims.” (App.

Br. 5, ¶1, emphasis in original). However, given the claim construction discussed *supra*, the broad language of the claim does not require a range component that determines the maximum and minimum values associated with each partition *to determine independent partitions*. The claim merely requires “a range component that determines the maximum and minimum values *associated with* each partition.” (Claim 1, emphasis added). We find these limitations are clearly met by the secondary Agrawal reference that teaches “(i) partitioning the data cube into multiple levels of d-dimensional blocks; [and] . . . (iii) for each block, determining the cell index of the max/min value;” (FF 1). We note that the language “associated with” significantly broadens any required nexus or operative coupling between the determined minimum and maximum values and each partition.

Turning to the tertiary reference, Ballamkonda teaches the use of aggregate functions that, according to one embodiment, are used to determine minimum and maximum values. (FF 2). Ballamkonda further teaches that “using parallel evaluation, the measure of an aggregate function is included as a partitioning key. . . .” (FF 4). We note that the Examiner merely relies on the primary Mittal reference for teaching a query process component to retrieve a plurality of partitions from a database. (Ans. 4).

Given the breadth of Appellants’ representative claim 1, we find that the Examiner’s proffered combination of Mittal, Agrawal, and Ballamkonda at least suggests the second, broader alternative construction of the disputed claim limitations, as follows:

a group component that utilizes the maximum and minimum range values to determine partition groups, wherein partition groups are executed concurrently with other partitions.

In particular, we find Ballamkonda's teaching of using parallel evaluation where processing of aggregate functions is split among different processing slaves (FF 3) reasonably suggests executing partition groups concurrently with other partitions. We further find that Ballamkonda's teaching of using the measure of an aggregate function as a partitioning key (FF 4) at least suggests (and thus renders obvious) the limitations of *a group component that utilizes the maximum and minimum range values to determine partition groups*. We note again that Ballamkonda teaches one type of aggregate function that is used to determine minimum and maximum values (FF 2).

Based on the foregoing discussion, it is our view that Appellants claimed invention is simply an arrangement of known teachings regarding database query systems, as previously discussed regarding the Mittal, Agrawal, and Ballamkonda references relied on by the Examiner. "[W]hen a patent 'simply arranges old elements with each performing the same function it had been known to perform' and yields no more than one would expect from such an arrangement, the combination is obvious." *KSR*, 127 S. Ct. at 1740 (citing *Sakraida v. AG Pro, Inc.*, 425 U. S. 273, 282 (1976)).

Moreover, after reviewing the record before us, we also find Appellants' arguments unavailing because they focus on the individual references in isolation rather than on the combination of references as a whole. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. *In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986).

Accordingly, we conclude that the Appellants have not met their burden of showing that the Examiner erred in rejecting representative claim 1 as being unpatentable over the combination of Mittal, Agrawal, and Ballamkonda. Claims 2-25 and 27-31 fall with representative claim 1.

CONCLUSION

Appellants have not established that the Examiner erred in rejecting claims 1-25 and 27-31 under 35 U.S.C. § 103(a).

DECISION

We affirm the Examiner's decision rejecting claims 1-25 and 27-31.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

pgc

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